LEAD IN PRIORITY AREAS FOLLOW-UP SAMPLING

MCAS IWAKUNI

14 May 2015

Background

In February 2014, a Marine Corps Policy Letter was signed requiring all drinking water outlets at schools, child development centers (CDC) and youth and teen centers to be tested for lead. Using EPA guidance, 349 outlets were tested at MCAS Iwakuni in July 2014 at nine buildings that fall under these criteria. Of those 349 samples, 20 exceeded the EPA recommended limits of 20 parts per billion (ppb), and two samples were at 20 ppb. The samples taken were considered "Initial samples"; meaning that the water was flushed, then the water was left to sit in the line for at least an 8 hour hold time (but no longer than 18 hours), then the first 250 milliliters (ml) of water at the outlet was collected and analyzed. Outlets that exceeded the EPA recommended guidance or were at the 20 ppb limit are shown below in Table 1:

Table 1
Initial Sample Exceedances

Bldg.	Outlet Description	Result (ppb)
550	Dark Room Sink Rm. 105	23.0
	Boy's Restroom Sink Rm. 112	22.0
	Boy's Restroom Sink Rm. 143	20.0
	Boy's Restroom Sink Rm. 207	20.0
	Laboratory Sink Rm. 214	21.0
	Girl's Restroom Sink Rm. 221	28.0
553	Classroom Sink Rm. 326	24.0
	Girl's Restroom Sink Rm. 323	45.0
	Boy's Restroom Sink Rm. 321	26.0
	Boy's Restroom Sink Rm. 321	71.0
	Men's Restroom Sink Rm. 344	27.0

Bldg.	Outlet Description	Result (ppb)
	Teacher's Room Sink Rm. 342	43.0
553	Boy's Restroom Sink Rm. 404	30.0
	Boy's Restroom Sink Rm. 404	23.0
	Girl's Restroom Sink Rm. 406	24.0
556	Gym Wall Spigot Rm. 307 (hot)	64.0
	Gym Wall Spigot Rm. 307 (cold)	52.0
564A	Restroom Wall Spigot Rm. 102	27.0
564B*	Girl's Restroom 2nd Floor	29.0
636	Restroom Sink Rm. 107	35.0
637	Kitchen Sink Rm. 130	26.0
	Kitchen Sink Rm. 130	29.0

*This sample was not collected by contractors, but by Environmental Staff.

Follow-Up Testing:

Follow-up sampling on these outlets, as well as sampling from 10 outlets that weren't captured in the first round of testing (see Table 2), was completed in September 2014.

Table 2
Additional Outlets Tested

Bldg. #	**Outlet Description**
550	Work Room Sink (Rm. 120)
553	Classroom fountain (Rm. 339)
555	Outdoor Janitor Sink
	Restroom Sink (Rm. T101)
	Restroom Sink (Rm. T201)
	Restroom Sink (Rm. T202)
	Restroom Sink (Rm. T205)
556	Supply & Maintenance Room Sink
443	Hallway Fountain
	Hallway Fountain

An initial sample (taken as soon as the tap was opened) and a 30-second draw (taken after the water was allowed to run for 30 seconds) were collected for most sites. The results for this

round of sampling, along with determined corrections, are shown below in Table 3.

Table 3
Sample Results and Corrective Actions Taen

Bldg	Description	Initial Sample (ppb)	30-second draw Sample (ppb)	Corrective Action
550	Dark Room Sink Rm. 105	23.0*	<1.0	Replaced faucet
	Boy's Restroom Sink Rm. 112	200	1.6	Replaced faucet
	Boy's Restroom Sink Rm. 143	2500	<1.0	Replaced faucet
	Boy's Restroom Sink Rm. 207	140	2.5	Replaced faucet
	Laboratory Sink Rm. 214	21.0*	1.9	Replaced faucet
	Girl's Restroom Sink Rm. 221	19.0	<1.0	Replaced faucet
553	Classroom Sink Rm. 326	170.0	<1.0	Replaced faucet
	Girl's Restroom Sink Rm. 323	160.0	<1.0	Replaced faucet
	Boy's Restroom Sink Rm. 321	35.0	<1.0	Replaced faucet
	Boy's Restroom Sink Rm. 321	120.0	<1.0	Replaced faucet
	Men's Restroom Sink Rm. 344	170.0	<1.0	Replaced faucet
	Teacher's Room Sink Rm. 342	590.0	<1.0	Replaced faucet
	Boy's Restroom Sink Rm. 404	97.0	<1.0	Replaced faucet
	Boy's Restroom Sink Rm. 404	240.0	1.1	Replaced faucet
	Girl's Restroom Sink Rm. 406	200.0	<1.0	Replaced faucet
556	Gym Wall Spigot Rm. 307 (hot)	64.0*	2.3	Removed these spigots from service.
	Gym Wall Spigot Rm. 307 (cold)	52.0*	2.7	
564A	Restroom Wall Spigot Rm. 102	27.0*	<1.0	Removed from service
564B	Girl's Restroom 2nd Floor	5.7	2.2	Although this round of results came under the limit, the faucet was replaced
636	Restroom Sink Rm. 107	74.0	1.8	Replace faucet
637	Kitchen Sink Rm. 130	710	2.4	Replace faucets
	Kitchen Sink Rm. 130	840	2.3	

*These initial sample numbers were taken from the previous sampling event in July 2014

Table 4 below lists the results for the ten outlets which had previously not been tested.

Table 4
Sample Results and Corrective Actions Taken

Bldg	Description	Initial Sample (ppb)	30-second draw Sample (ppb)	Corrective Actions
550	Work Room (Rm. 120	<1.0	<1.0	Outlet is below limits
553	Classroom Fountain Rm. 339	<1.0	<1.0	Outlet is below limits
556	**Supply Room Sink**	**2700**	**<1.0**	**Replaced faucet**
443	Hallway fountain #1	<1.0	<1.0	Outlet is below limits
	Hallway fountain #2	<1.0	<1.0	Outlet is below limits
555	Outside Janitor Sink	<1.0	<1.0	Outlet is below limits
	T101 Restroom Sink	**24.0**	**<1.0**	**Replaced faucet**
	T201 Restroom Sink	7.9	<1.0	Outlet is below limits
	T202 Restroom Sink	9.6	<1.0	Outlet is below limits
	T205 Restroom Sink	**120.0**	**<1.0**	**Replaced faucet**

All 30-second draw samples were well under the EPA recommended limit of 20 ppb, determinating that lead contamination stemmed only from the individual fixture, and not in the water distribution system leading to the fixtures, or in the drinking water itself.

MCAS Iwakuni chose the most proactive course of action: to replace or remove from service all faucets or spigots that exceeded 20 ppb.

Replacement and Removal

All outlets exceeding the 20 ppb limit in the initial sample were either replaced or permanently taken out of service and retested on 17 Feb 2015. The results of the retesting are shown in Table 5 as follows:

Table 5
Testing Results for Replaced Fixtures

Bldg	Description	Corrective Action	Initial Sample (ppb)	30-second draw Sample (ppb)
550	Dark Room Sink Rm. 105	Replaced faucet	3.7	<1.0
	Boy's Restroom Sink Rm. 112	**Replaced faucet**	**24.0**	**11.0**
	Boy's Restroom Sink Rm. 143	**Replaced faucet**	**27.0**	**4.2**
	Boy's Restroom Sink Rm. 207	**Replaced faucet**	**23.0**	**15.0**
	Laboratory Sink Rm. 214	Replaced faucet	4.5	1.3
	Girl's Restroom Sink Rm. 221	Replaced faucet	2.0	<1.0
553	Classroom Sink Rm. 326	Replaced faucet	1.9	<1.0
	Girl's Restroom Sink Rm. 323	Replaced faucet	1.4	1.0
	Boy's Restroom Sink Rm. 321	Replaced faucet	2.0	1.0
	Boy's Restroom Sink Rm. 321	Replaced faucet	5.3	1.0
	Men's Restroom Sink Rm. 344	Replaced faucet	2.2	<1.0
	Teacher's Room Sink Rm. 342	Replaced faucet	4.9	1.0
	Boy's Restroom Sink Rm. 404	Replaced faucet	1.6	<1.0
	Boy's Restroom Sink Rm. 404	Replaced faucet	2.0	<1.0
	Girl's Restroom Sink Rm. 406	Replaced faucet	<1.0	<1.0
556	Gym Wall Spigot Rm. 307 (hot)	Removed from service	N/A	N/A
	Gym Wall Spigot Rm. 307	Removed from	N/A	N/A

Bldg	Description	Corrective Action	Initial Sample (ppb)	30-second draw Sample (ppb)
	(cold)	service		
	Gym Supply Room	Replaced faucet	6.5	3.5
564A	Restroom Wall Spigot Rm. 102	Removed from service	N/A	N/A
564B	Girl's Restroom 2nd Floor	Replaced faucet	5.6	<1.0
636	Restroom Sink Rm. 107	Replaced faucet	2.6	<1.0
637	Kitchen Sink Rm. 130	Replaced faucet	9.2	1.5
	Kitchen Sink Rm. 130	Replaced faucet	6.4	1.1
555	Restroom sink Rm. T101	Replaced faucet	<1.0	<1.0
	Restroom sink Rm. T205	Replaced faucet	<1.0	<1.0

Three sinks (shown in bold in the table above) still failed the initial test. These sinks were all at Bldg. 550 (MC Perry High School) and had the same configuration. They were located in boy's restrooms and all were handicapped sinks with only a cold water faucet but rigged underneath with a Japanese brand hot water mixer. We determined that a component in the hot water mixture was causing the higher lead levels. The mixers were removed and the lines were retested on 17 April 2015.

During reevaluation of the original report, we also noted one sink at the elementary school annex (Bldg. 553) that originally had a sample collected, but the sample did not make it to the laboratory, thus no sample was analyzed. This outlet was resampled and tested along with the three outlets at the high school on 17 April 2015. Results are shown below in Table 6.

Table 6
Final Round of Retesting

Bldg	Description	Initial Sample (ppb)	30-second draw Sample (ppb)
550	Boy's Restroom Sink Rm. 112	5.4	<1.0
	Boy's Restroom Sink Rm. 143	7.7	<1.0
	Boy's Restroom Sink Rm. 207	8.8	<1.0
553	Classroom Sink Rm. 326	2.1	<1.0

Conclusion

After extensive testing and replacement or removal of fixtures, all drinking water outlets at the elementary and high schools, teen/youth centers, and CDCs that can be used as a source of drinking water are now below the 20 ppb limit and meet Navy and Marine Corps policy criteria. No further testing is required until the next scheduled testing in 2019.